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MEMORANDUM

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FROM: Karen W. DiBiasio, Ph.D. Karen W. DiBiasio
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DATE: March 11, 2015

SUBJECT: Former Pechiney Cast Plate, Inc.
Phase II Soil Remedial Action Completion Report

PCA Code: 11018 Site Code: 301396 WP: 00

DOCUMENT REVIEWED

Per your request, The Human and Ecological Risk Office (HERO) reviewed the November 7, 2014 "Phase II Completion Report" prepared by AMEC Environment & Infrastructure in Irvine.

BACKGROUND

HERO was requested to provide continuing toxicology and risk assessment support for the Former Pechiney Cast Plate, Inc. Facility (aka, Alcoa) in Vernon, California (Site). HERO reviewed the Phase II Soil Remedial Action Completion Report (RACR). According to the May 7, 2012 Feasibility Study, the Site is approximately 26.9 acres and the Pechiney facility consisted of one large single building of about 600,000 square feet (sq ft). The Site was once part of a 56-acre, aluminum manufacturing facility owned and operated by the Aluminum Company of America (Alcoa) whose operations began in 1937. Alcoa used fuels and Stoddard solvent that were stored in underground storage tanks (USTs). Alcoa also used lubricating and hydraulic oils and generated hazardous waste that was stored at various locations throughout the Site. In 1999, Pechiney

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purchased the western portion of the former Alcoa property. At that time, Alcoa investigated subsurface conditions and conducted limited remediation in both the eastern and western portions of the former Alcoa facility as part of their efforts to seek the closure of its City of Vernon H&EC hazardous materials permit. In November 2006, Pechiney closed the facility and completed above ground demolition work that consisted of demolition and off-site transport of debris from the above-ground features, including the former manufacturing facilities.

The below-grade demolition in the Phase II Completion Report (RACR) consisted of removal of building slabs, pavements, below-grade man-made structures (including footings, foundation, pits, and sumps), and other structures located adjacent to the former building areas. The Phase II RACR also reports on soil remediation, but is limited to soil as the only environmental medium. Soil vapor and groundwater remediation are reported elsewhere.

SCOPE OF REVIEW

HERO reviewed the document for aspects relevant to human health risk assessment to determine whether soils remaining in place meet the remedial goals (RGs) and are protective of human health for current and potential future exposures. HERO defers to DTSC Project Management staff on appropriateness of the sample locations and analyses conducted. The soil sampling and analytical methods were not included in the report; HERO assumes other DTSC staff have assessed the adequacy of the sampling and analysis methods for risk-based decision making, including that all metals used at the former facility were included in the analytical suite (for example, iron and/or tin).

GENERAL COMMENTS

1. Risk of COCs remaining in place: HERO does not agree that remaining soils are below site-specific remedial goals (RGs) with the exception soil under warning barriers. There are some additional locations not under warning barriers that appear to remain with soil concentrations above RGs, as well as many areas that lack verification sampling for soil excavated due to exceeding RGs; as presented below in GENERAL COMMENT 2, remaining soil may not be protective of human health for potential future occupational exposures. In particular, HERO is concerned about potential indoor air vapor intrusion in areas with very high total petroleum hydrocarbons as gasoline and diesel (TPHg and TPHd) remaining above RGs (for example 476-SS-001 verification sample at 2.5 ft below the level of the former slab [bls] with TPHd 8500 mg/kg and total TPH 18,000 mg/kg; #1076 under warning barrier with TPHd at 1210 mg/kg at 20 ft bls and no deeper samples). In addition, HERO is unable to draw a conclusion on the adequacy of the Phase II Soil RACR due to some aspects that require clarification. HERO recommends submittal of responses to comments and a revised Phase II Soil RACR.

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2. COCs remaining in place:

   A. Concentrations: The report does not transparently disclose the concentrations of COCs remaining in place. HERO recommends discussing the concentrations detected in soils remaining, for example beneath the warning barriers.

   B. Areas: During the subsurface demolition and soil removals, some of the activities included installing subsurface concrete caps over underground features (hydraulic ram pits extending 20 ft or more below the original floor slab); these features were previously backfilled with pea gravel and/or demolished then covered with surface level concrete by Alco. Also during the subsurface demolition and soil removals, some areas with soil concentration higher than cleanup goals were covered with subsurface concrete caps and a warning barrier consisting of a highly visible geotextile layer. Figures 6, 7, 8 and 9 identify eight areas with concrete subsurface covers, whereas only four areas are discussed in Section 4, page 5 and Section 7, page 7. Eight areas with in-place subsurface structures are presented in Appendix F. First, HERO recommends revising the document for internal consistency. HERO also recommends revising the document to separately and transparently address areas with contaminants remaining in place at concentrations above RGs, both areas with subsurface warning barriers and concrete cap and areas with subsurface concrete covers over subsurface structures/features. In addition, HERO recommends revising Figures 5 through 9 to distinguish between the areas with contaminant concentrations above RGs remaining in place from those areas covered by subsurface concrete with confirmation samples to demonstrate soil RGs were achieved.

3. Soil Removal Areas: Based on the data in Tables 6, 7, 8 and 9, soil removal areas were not limited to those mentioned in Section 4, page 4. In addition, many samples are reported in the tables as excavated in areas that are not designated on Figures 6, 7, 8 or 9 as soil removal areas. HERO recommends revising the report (text and figures) to depict and discuss all soil removal areas.

4. SVE radii of influence: The report mentions soil remediation for volatile organic compounds (VOCs) using soil vapor extraction (SVE) was performed in Phase III and Phase IV Areas prior to demolition and will continue post demolition of the below grade features (Section 1.0, Introduction and Background, page 2). The information on the locations of SVE and radii of influence are imperative to interpretation of the Phase II Soil RACR; therefore, HERO recommends including this information in the responses to comments and the revised Phase II Soil RACR.

5. RGs for VOCs: There are no RGs for VOCs, although as noted above in General Comment 4 soil VOCs have been identified as COCs in need of remediation. HERO recommends discussing in the responses to comments whether VOCs were evaluated in the risk assessment and the rationale for no RGs in the Phase II RACR. HERO recommends revising the document to incorporate discussion on the cleanup

of soil VOCs and soil vapors including the RGs as well as the titles and dates of reports documenting these completion activities for Phase II.

6. Potential for additional deeper layer of contaminated soil: PCB data demonstrate 2 depth-discrete zones of soil with PCBs at concentrations above RGs separated by a layer of soil relatively unaffected by PCBs (concentrations less than RGs); the second deeper depth zone of contamination was observed to start at depths of 21 to 29 ft bls. HERO recommends discussing this phenomenon in the revised RACR along with the potential that other contaminants may also be present that were not included in the analytical suites of deeper soil. From a human health perspective, potential exposures from contaminants in soil at depths over 10 ft below ground surface (bgs) are limited to inhalation of vapors or migration to groundwater with subsequent exposures.

7. PCB's remaining and potential Vapor Intrusion: As noted in both DTSC Vapor Intrusion guidance (DTSC, 2011) and USEPA Regional Screening Levels (RSLs; January 2015; http://www.epa.gov/region9/superfund/prg/), some Polychlorinated Biphenyls (PCBs) are volatile and exhibit potential for indoor air vapor intrusion. HERO recommends discussing the risk assessment and mitigation measures taken and/or included in the Remedial Action Plan (RAP) for protection of future on-site workers from indoor air vapor intrusion risks.

8. Source Areas with no Soil Data: From a human health perspective, there were no sampling and analysis data and no removals from (1) the Former 10,000 gallon USTs depicted in Figure 10, (2) outside/beyond the chain link fence along the western side of Phase IIB area adjacent to PCB soil removal areas, and (3) storm water outfall area 7. HERO recommends including additional documentation and discussion regarding the risk evaluations for these area in the responses to comments and the revised RACR.

9. Area Released for Completion: Contrary to page 5, Section 4, there is no text in Section 7 discussing which portions of the Phase II area "were released for completion". HERO recommends including discussion and maps with the portions of Phase II area released for completion in the responses to comments and revised RACR.

10. Hexavalent chromium: There are no RGs for hexavalent chromium (Cr^{+6}). The report did not address whether Cr^{+6} was used or generated in the former processes at the site, nor did the report address whether Cr^{+6} was an analyte of soil samples from areas with elevated total chromium. HERO recommends discussing in the responses to comments whether Cr^{+6} was included in the site characterization and risk assessment and present the results. If Cr^{+6} was not included in the site characterization and risk assessment, discuss the rationale for this decision in the responses to comments.

11. PAHs: There are no remediation goals for polynuclear aromatic hydrocarbons (PAHs) or dioxins/furans which may have been formed during on-site activities. The report did not address whether PAHs or dioxins and furans were included in the analysis of any soil samples. HERO recommends discussing in the responses to comments whether PAHs and dioxins/furans were included in the site characterization and risk assessment and present the results. If PAHs and/or dioxins/furans were not included in the site characterization and risk assessment, discuss the rationale for this decision in the responses to comments.

12. Asbestos Containing Material: Appendix C only contains reports from the initial reconnaissance for asbestos. Section 5, page 6 notes that additional asbestos testing was conducted as suspect material (including transit piping) were encountered in the below grade demolition and excavation work. Table 10 denotes disposal of over 12,000 tons of asbestos. None of the soil surrounding the pipes or asbestos containing building materials was analyzed for asbestos. HERO recommends discussing the rationale for not analyzing any soil samples for asbestos in the revised RACR.

SPECIFIC COMMENTS

1. Insure internal consistency. Section 1, page 2, states soil removal was planned only for areas where metals or PCBs were detected in shallow soil at concentrations above risk-based remediation goals, yet excavation of petroleum hydrocarbon impacted soil are discussed in Section 2, page 3. HERO recommends amending the text for internal consistency in the revised RACR.

2. Data gaps: Examples of locations without data to support that soil left in place is all less than RGs or under subsurface concrete covers. HERO recommends discussing in the responses to comments all chemicals of concern (COCs) left in place above remedial goals.

   A. Missing sample locations on maps. Below are examples of samples with data in Tables 2 through 9 that exceed RBs without their locations depicted on any of the Figures 4 through 9. HERO recommends revising the figures to include the following sampling locations and provide the nearby soil sampling locations that verify PCBs do not remain in soil above the RGs from each of these areas in both the responses to comments and the revised RACR.

      1) Table 2: DC-414 concrete with 1164 mg/kg total PCBs; DC-340A and B with total PCBs in concrete to 213 mg/kg.
      2) Table 6, PCBs in soil: Samples #1234A, #1252, #1253, #120 to 123.
      3) Table 7, THPs in soil: 363-SS-001
      4) Table 9, Metals in soil: W-96 to -99.

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B. No soil samples. Below are examples of samples with elevated concentrations in concrete or other materials with evidence that surrounding soil may be contaminated; however no soil analyses were conducted.

1) PCBs, Table 2:
   - DC-1 oil and DC-2 oil (≥ 1,000,000 mg/kg total PCBs). Pure PCBs with no soil data from under the structures and step outs only from DC-1 to the west.
   - DC-414 (concrete with 1164 mg/kg total PCBs)
   - 633-CS-001
   - 633-CS-003
   - 634-CS-001
   - 634-CS-002
   - 877-O-001 (pipe sediment)
   - 879-CS-001 (6270 mg/kg total PCBs in concrete)
   - 883-O-001 (material inside vault)
   - 914-CS-001 (2180 mg/kg total PCBs inside vault of outfall #7 basin)
   - 924-CS-001, -002 and -003 (4600 mg/kg total PCBs)
   - DC-364 (14,800 mg/kg total PCBs in concrete)
   - DC-377 (12,360 mg/kg total PCBs in concrete).

2) TPHs, Table 3: The following had no soil TPH data in Table 7 and no soil removal areas identified on maps.
   - 195-O-002 (7490 mg/kg TPHd in soil beneath pipe)
   - 253-IIB-O-003 (650 mg/kg TPHg in pipe debris)
   - 675-IIB-O-001 (42,800 mg/kg TPHg and 203,000 mg/kg TPHd in substance within pipe)
   - DC-1 OIL (287,000 mg/kg TPHd and 282,000 mg/kg TPHmo)
   - DC-2 OIL (297,000 mg/kg TPHd and 382,300 mg/kg TPHmo)

3) VOCs, Table 4: The following had no soil VOCs data in Table 8 and no soil removal areas identified on maps.
   a) TCE: #536 (0.8 mg/kg) demonstrates a potential on-site TCE source.
   b) BTEX and trimethylbenzenes: DC-1 OIL and DC-2 OIL.

4) Metals, Table 5: The following samples were other than concrete and had elevated concentrations of chromium (Cr) and/or lead (Pb) yet no soil metals data in Table 9 and no soil removal areas identified on maps.
   a) 103-1-P-O-001: Cr 98.2 mg/kg; Pb 981 mg/kg (material inside storm water pipe)
   b) 195-IIA-O-002: Cr 94 mg/kg; Pb 440 mg/kg (soil below pipe)
   c) 722-O-001: Pb 10,400 mg/kg (sediment inside sump)
   d) 91-O-002: Cr 255 mg/kg (gray stained material)
   e) 251-O-001: Cr 102 mg/kg, Pb 2320 mg/kg (sample from interior of pipe)

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f) 252-O-002 Cr 372 mg/kg; Pb 1610 mg/kg (debris from inside steel pipe)
g) 624-O-001: Cr 1200 mg/kg (metal slag on sidewalls)

C. Soil samples with data to support that surrounding soil may have concentrations of COCs above RGs are plentiful, as exemplified below.

1) PCBs may remain in soil above RGs based on HERO's analysis of Table 6 and the corresponding Figures.

a) No confirmation samples were taken from soil removals triggered by PCBs above RGs in samples #415, #608, 425-SS-04, #644, #467, 259-SS-01, 259-SS-02, 671-SS-001, 901-SS-006, #1064, #257 to 262, #960, #279, #280, #480 to 483, #460, #461, #465, #466, #468, #454 to 458, #969 to 972, #481 to 483, #692, #436 to 441, #453 to 458, #469 to 472, #478 to 483, and #803.

b) Lateral extents of contamination were not confirmed from areas with total PCBs in the 1000 to over 10,000 mg/kg concentration ranges. For example, Former Building 644; the area of #1076/1079/1081; the area of W-15 along the Boyle Avenue fence line; and areas of samples #950/#965, #959 and #968.

2) TPH may remain in soil above RGs based on HERO's analysis of Table 7 and the corresponding Figures. Examples of locations with soil TPHs above RGs that remain in place are verification samples 476-SS-001 and 01-SS-04 (also known as 24-SS-004) or were excavated with no confirmation (either step down and/or step out in all directions) soil sampling and analyses are #390, #394, #789, 494-SS-002, 910-SS-001, #1252, #1251, #1310, #1271, #1312, #1266, #1306, #1327 and #1125.

3) Metals, including arsenic, chromium and lead remain or may remain in soil at concentrations above RGs based on HERO's evaluation of Table 9 and corresponding Figures.

a) Arsenic remains in soil above the RG in verification samples W-95 and W-81, and may remain above the RG in areas where soil was excavated due to arsenic, but without any confirmation sampling and analysis, such as W-12, W-60, W-82, W-10, W-15 and -16, W-5 and -6, W-13 and -14, W-11 and -12, and W-7 and -8.

b) Chromium remains above the RG in verification soil samples 525-SS-003 and #861-5 and there are no verification soil samples for excavated samples #390, 617-SS-001 and W-21 that had chromium above the RG.

c) Lead remains above the RG in verification soil sample 525-SS-003 and there are no verification soil samples for excavated samples W-21 and W21A that had lead above the RG.

d) Depth deficiency of metals data. Only 5 areas had metals analyses on soil to depths of 10 ft bls (10 ft bgs is needed for risk assessment), with most areas limited to the top 2 to 3 ft for soil metals evaluation. Evidence that concentrations of lead increase with soil depth is provided by samples 525-SS-003 at 3 ft, 525-SS-001 at 2 ft, 525-SS-002 at 2 ft and 526-SS-001 at 1 ft with lead soil concentrations of 735, 8.31, 13.1, and 1.99 mg/kg, respectively. If a second deeper layer of metals contamination in soil exists, as was evident with PCBs), then concentrations above RGs may remain on-site. HERO recommends presenting the rationale for the scarcity of metals data from soil deeper than 3 ft bls.

3. Tables 6 through 9, Soil Sample Results for PCBs, TPH, VOCs and Metals, respectively:

A. To improve data interpretation, HERO recommends adding a column to identify the depth below ground surface. The Tables currently have only soil depth below slab (bls). Furthermore, the report does not specify whether the soil depth below slab is the depth below the former building foundation slab or the sump/pit bottom.

B. Confirm that all samples identified with a "Status" of "V" (verification) actually remain in place. For example, Table 7 TPH soil concentration are above soil RGs for samples 494-SS-002 (TPHd 3400 mg/kg, TPHmo 20,400 mg/kg, total TPH 24,000 mg/kg) at 4.5 ft bls is shown as removed in Figure 7, as is sample 494-SS-005 at 4.5 ft bls.

C. HERO recommends adding to the Tables a column with the alpha-numeric grid location of the sample, as this will greatly aid in the reader's ability to establish the site sample locations on corresponding Figures.

D. HERO recommends adding a column to specify the verification samples for each sample that was excavated due to exceeding RGs.

E. Confounding Information / Inconsistencies

1) Table 6, PCBs: Samples #1297 and 1314 are both listed as from 5.5 ft bls, but with different elevations above Mean Sea Level (MSL) and sample #1314 is reported as a verification sample. Similarly, samples #1345 and 1346 are reported in Table 6 as from the same depth with #1345 being excavated and #1346 as a verification sample, however both are depicted as at the same

location on Figures 6, 7 and 8. HERO recommends revising Table 6 entries for these samples for clarification.

2) Table 6, PCBs: Two results are presented for each of samples #1234-9 and 1234-11 with about two orders of magnitude difference. HERO recommends revising the RACR by amending Table 6 entries for these samples to rectify these apparent discrepancies.

3) Table 7, TPHs: The last entry has a Sample ID of 01-SS-04 and a Map Reference ID of 24-SS-004. Figure 6 contains a sample location for 01-SS-04, not 24-SS-004. HERO recommends revising the RACR by amending Table 7 for this sample to rectify the discrepancy.

4) Table 9, Metals: the remarks column notes copper (Cu) removal areas for verification samples, however there are no Cu RGs in Table 1 and no discussion on copper removals in the text. HERO recommends rectifying these apparent inconsistencies in the revised RACR.

4. Figures 4 through 8:

A. Areas labelled as Phase IIA and Phase IIB do not agree with all other figures in the report which have areas A and B reversed. HERO recommends revising the RACR for consistency and accuracy.

B. Some sample IDs are followed by an * symbol. HERO recommends revising the figures to include in the key the definition of the * symbol.

C. The various soil removal areas, particularly in the western portion of Phase II (Phase IIB area) are difficult to decipher. HERO recommends revising the figures to include either shading or a background fill color for soil removal areas key-coded by depth of the excavations.

D. Many samples are identified as excavated in the corresponding data tables and on the figures using gray sample indicator dots, however there are no corresponding soil removal areas demarcated on the figures for many of these areas. In addition, Table 7, page 6, identifies a hydrocarbon removal area between rows 42 to 46 and columns D to H that is not identified as such on any of the maps/figures. HERO recommends demarcation of all soil removal areas on Figures 6 through 9 in the revised RACR.

E. Sample locations are identified on Figure 6 that do not have any corresponding soil data in Tables 5 through 9. Some examples are the storm water outfall #7 area, the former UST area, and many other samples such as W-104. HERO recommends including all available soil data in the revised RACR tables.

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F. All samples with data in Tables 6 through 9 are not identified in the corresponding figures. For example, Table 7 with TPH soil results has multiple samples from Pond #2 from 7 to 10 ft bls, however none of these samples are identified on Figure 8. In addition, Table 9 with metal concentration results for soil from samples W-96 to -99 are not located on any of the figures.

5. Appendix C: HERO recommends including a figure to identify locations of the buildings where asbestos containing materials were detected and abated from building materials. In addition, HERO recommends discussing the rationale for not analyzing any soil samples for asbestos.

CONCLUSIONS

HERO reviewed the Former Pechiney Cast Plate, Inc. Facility (aka, Alcoa) in Vernon, California (Site), Phase II Soil Remedial Action Completion Report (RACR) dated November 7, 2014. Additional description and documentation are needed in the Phase II Soil RACR prior to HERO's final interpretation of achievement of soil remedial goals protective of human health. HERO recommends submittal of responses to comments.

Please contact me at (916) 255-6633 or karen.dibiasio@dtsc.ca.gov if you have any questions.

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